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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,031	04/24/2006	Franco Cocchini	05788.0371	4029

22852 7590 12/31/2009

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
DEHGHAN, QUEENIE S	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
12/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,031	COCCHINI ET AL.	
	Examiner	Art Unit	
	QUEENIE DEHGHAN	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garner et al. (2004/0017986) in view of Blaszyk et al. (6,324,872). Garner disclose a method for producing an optical fiber having low PMD comprising providing a glass optical fiber preform, heating the end portion of the preform, drawing the heated glass material at a drawing speed V to form an optical fiber, the drawn glass having a viscous zone and applying a sinusoidal spin to the fiber, which is transmitted to the viscous zone. Furthermore, the drawing and spin conditions (i.e. the spin function frequency,

viscous zone length, and drawing speed) of Garner is such that that both a torsion and at least a 60% detorsion are applied to the viscous zone as indicated by the positive and negative values (abstract, [0038], [0025]-[0026], [0013]-[0019], [0040]-[0042], figures 3b, 3c, 5a-6).

4. Garner briefly mentions heating the fiber preform in a heat source to create a neck down area, but doesn't offer more details. Blaszyk teaches a similar process comprising creating a viscous zone length by heating an end portion of an optical fiber preform in a furnace, drawing a fiber and spinning the fiber such that a spin function is applied to the viscous zone of the each portion of the drawn glass material, wherein the spin is substantially sinusoidal (col. 3 lines 48-55, 66, col. 5 lines 19-37, col. 6 lines 38-41, 51-56, col. 9 lines 13-16, col. 9 40-41). Blaszyk also teaches applying a spin in one direction as well as in the opposite direction (col. 9 lines 34-37). Blaszyk also teaches the possibility of applying any desired torsion and detorsion to the drawn glass (col. 5 lines 33-36, col. 14 lines 26-30). Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied any desired spin function, including a torsion and detorsion of at least 60% (as embodied by Garner) that is substantially sinusoidal to the viscous zone of each portion of the drawn glass material in the process of Garner, since Blaszyk has demonstrated any the spin function can be utilized and impressed on the fiber in the viscous zone by varying know variables such as drawing speed or spin frequency.

5. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garner et al. (2004/0017986) in view of Blaszyk et al. (6,324,872), as applied to claims

8 and 10 above, in view of Moridaira (2003/0086670). The applicant has recited an equation that is essentially a result to be achieved. It would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the method of Garner and Blaszyk to result in satisfaction of the claimed equation, since the method steps of Garner and Blaszyk are essentially the same as the claimed limitations of claim 8.

6. Additionally, since limits on the variables (i.e. drawing rate, spin frequency, etc.) have not been explicitly provided, there exists a large number of combinations of values that would satisfy this equation. For example, Garner discloses prior art that teaches spin function frequencies and drawing speeds. Garner mentions examples including a frequency of 60 cycles/min for a drawing speed of 1.5m/s and also a frequency of 106cycles/min or 1.76 cycles/sec with a drawing speed of 3m/s ([0042]), suggesting that a spin frequency is a known variable to vary depending on the drawing speed. A frequency of 1.76 cycles/sec with a drawing speed of 3m/s provides for a V/*v* ratio of 1.7 or a viscous zone length in the range of 0.515m-1.0m. However, Garner and Blaszyk fail to mention a viscous zone length. Moridaira teaches an optical fiber drawing process comprising setting a furnace length and heater placement in a drawing tower so as to produce the desired viscous zone length. Similarly, Moridaira teaches correlating a viscous zone length to the drawing speed and preform diameter, for example a drawing speed of 1500m/min and a preform diameter of 120mm would need a viscous length of 900mm or 0.9m ([0184], [0192]-[0193]). Such a viscous zone length would

satisfy the claimed limitation based on the spin function and drawing speed of Garner. That is:

$1.7*L \leq V/v \leq 3.3L$

$1.7 * 0.9 \leq 1.7 \leq 3.3*0.9$

$1.53 \leq 1.7 \leq 2.97$

The applicant has not really set forth any real limits to what the values L, V, and v are. Therefore, a large number of combination of values would satisfy this limitation. Garner, Blaszyk, and Moridaira has suggested varying variable such as spin frequencies, draw rates, and viscous zone length as known variables in the drawing process to achieve the desired properties in the drawn optical fiber. Accordingly, it would have been obvious to one of ordinary skill in the art to combine known variables, such as the suggested spin frequency and drawing rate of Garner and the viscous zone length, hence satisfying the claimed inequality, in order to reduce PMD and provide excellent hydrogen resistance in the optical fiber

7. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garner et al. (2004/0017986) in view of Blaszyk et al. (6,324,872), as applied to claim 8 above, and further in view of Evans et al. (5,822,487). Garner fails to specifically disclose a maximum applied torsion or a maximum frozen-in torsion. However, Garner acknowledges the spin actually introduced to the fiber compared to the spin attempted to be introduced is less than 100% ([0020]). Evans et al. teach a method for spinning a fiber wherein the maximum applied torsion is at least 4 turns/meter (col. 5 line 66 to col. 6 line 4). Since Garner teaches that the frozen-in torsion is less than 100% the applied

torsion, it would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the frozen-in torsion to be less than 4 turns/meter, since the applied torsion is 4 turns/meter.

8. Similarly to the above claims, the applicant has recited conditions that are essentially a result to be achieved. It would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the method of Garner and Blaszyk to result in satisfaction of the claimed equation, since the method steps of Garner are essentially the same as the claimed limitations of claim 8. Additionally, since limits on the variables (i.e. drawing rate, spin frequency, etc.) have not been explicitly provided, there exists a large number of combinations of values that would satisfy this equation.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garner et al. (2004/0017986), Blaszyk et al. (6,324,872), and Evans et al. (5,822,487), as applied to claim 13 above, in further view of Cocchini et al. (WO 01/33184). The applicant has recited an equation that is essentially a result to be achieved. It would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the method of Garner to result in satisfaction of the claimed equation, since the method steps of Garner and Blaszyk are essentially the same as the claimed limitations of claim 8.

10. Additionally, since limits on the variables (i.e. drawing rate, spin frequency, etc.) have not been explicitly provided, there exists a large number of combinations of values that would satisfy this equation. For example, Garner teaches an example wherein a

spin function frequency of 1.76 cycles/sec and drawing speed of 3m/s is applied to a fiber as it is drawn. Furthermore, Evans teaches a spin amplitude of 1 to 5 rotations (col. 4 lines 60-61). As previously mentioned, Evans also teaches an applied torsion of 4 turns/meter and Garner teaches an actually torsion of less than 100% of the applied, but does not specify how much less. Cocchini teaches applying a spin to a fiber wherein the actual frozen-in spin is only 29% of the applied spin (page 34). Applying the drawing conditions suggested by Garner, this provides for a spin amplitude (θ) in the range of 0.92 to 1.48 turns, as calculated in the following manner:

$2V/v\pi \leq \theta \leq 2V/(v\,\pi(1-R))$

$2*3m/s/(1.76\ cycles/sec*3.14) \leq \theta \leq 2*3m/s/(1.76cycles/sec*3.14)(1-.29)$

$0.92 \leq \theta \leq 1.48$

As mentioned, Evans teach a spin amplitude of 1 rotation, which satisfies this equation. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Cocchini of a torsion difference of 29% to the spin conditions of Garner and Evans, resulting in satisfying the equation, since the examples provide actual data from which further experimentation can be derived.

Response to Arguments

11. Applicant's arguments with respect to claim 8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUEENIE DEHGHAN whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/

Supervisory Patent Examiner, Art Unit 1791

Q Dehghan